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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/649,122	08/28/2000	Chandan Adhikari	1768.2001-001	7057
207	7590	08/10/2006	EXAMINER KOPPIKAR, VIVEK D	
WEINGARTEN, SCHURGIN, GAGNEBIN & LEOVICI LLP TEN POST OFFICE SQUARE BOSTON, MA 02109			ART UNIT 3626	PAPER NUMBER

DATE MAILED: 08/10/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No. 09/649,122	Applicant(s) ADHIKARI ET AL.	
	Examiner Vivek D. Koppikar	Art Unit 3626	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 14 April 2006.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-14, 16, 20, 22-24, 27-45 and 82-84 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-14, 16, 20, 22-24, 27, 29-45 and 82-84 is/are rejected.
- 7) ☒ Claim(s) 28 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Status of the Application

1. Claims 1-14, 16, 20, 22-24, 27, 29-45 and 82-84 have been examined in this application. This is a Second, Non-Final Action.

Claim Rejections - 35 USC § 103

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

3. Claims 1-14, 22-24, 27, 29-45 and 82-84 rejected under 35 U.S.C. 103(a) as being unpatentable over US Patent Number 6,609,101 to Landvater in view of US Patent Number 4,852,001 to Tsushima and US Patent Number 5,274,571 to Heese in view of “Understanding simulation solutions to resource constrained project scheduling problems with stochastic task durations” by Abel Fernandez (hereinafter referred to as Fernandez).

(A) As per claim 1, Landvater teaches a method of forecasting business volume and workforce requirements with the aid of a computer system (Landvater: abstract), comprising:

defining a business structure in the computer system (Col. 4, Ln. 16-52 and Col. 6, Ln. 45-50);

defining a forecast structure in the computer system (Col. 8, Ln. 25-46), wherein certain hierarchical levels of the forecast structure map to corresponding

hierarchical levels in the business structure (Col. 8, Ln. 25-46);

forecasting business volume in the computer system for a predefined duration,

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responsive to a first set of historical data, and to the business and forecast structures (Col. 4, Ln. 15-34);

forecasting a traffic pattern in the computer system for the predefined duration, responsive to a second set of historical data (Col. 4, Ln. 15-35 and Col. 8, Ln. 25-46); and

calculating workforce requirements in the computer system for the predefined duration, based on the forecast business volume and on the forecast traffic pattern (Col. 10, Ln. 6-12);

Landvater does not teach the steps of calculating workforce requirements includes resource leveling, however, this feature is well known in the art as evidenced by Tsushima (Col. 2, Ln. 7-33). At the time of the invention it would have been obvious for one of ordinary skill in the art to have modified the method of Landvater by adding the aforementioned from Tsushima with the motivation of producing a system capable of providing more optimum job scheduling for a wide range of applications as recited in Tsushima (Col. 1, Ln. 50-53).

The collective method of Landvater in view of Tsushima does not teach a means of resource leveling, are well known in the art as evidenced by Heese (Col. 6, Ln. 49-64). At the time of the invention, it would have been obvious for one of ordinary skill in the art to have modified the collective method of Landvater in view of Tsushima with the aforementioned step from Heese with the motivation of smoothening the difference between the peak and the valleys as recited in Heese (Col. 6, Ln. 53-56).

The collective method of Landvater in view of Tsushima and Heese do not teach or suggest the following steps with regard to the resource leveling step:

resource leveling step comprises

determining valleys (peak) in a preliminary schedule,

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ranking the valleys (peaks),
assigning at least one unassigned task to a highest-ranked valley, and repeating the steps of determining peaks, determining valleys, ranking the valleys and assigning at least one unassigned task.

However, the above recited steps, are taught in Fernandez (Page 2, Paragraph 4-Page 3, Paragraph 2 and Page 12, Paragraph 2). (Note: Fernandez does not teach a means of ranking the valleys (peaks) per se, however, Fernandez does teach prioritizing tasks and assigning resources based on these priorities to assign resources which the examiner takes the position is the same method as ranking the valleys and assigning tasks to each of the valleys.

(B) As per claims 2-5, in the collective method of Landvater in view of Tsushima and Heese and Fernandez the historical data covers various time intervals (Landvater: Col. 5, Ln. 7-16).

(C) As per claim 6, in the collective method of Landvater in view of Tsushima and Heese and Fernandez the forecasting business volume comprises using a daily trend forecasting algorithm (Landvater: Col. 8, Ln. 29-41).

(D) As per claim 7, in the collective method of Landvater in view of Tsushima and Heese and Fernandez forecasting business volume comprises using an exponential smoothing algorithm (Landvater: Figure 23, Col. 12, Ln. 41-44 and Col. 22, Ln. 28-47).

(E) As per claim 8, in the collective method of Landvater in view of Tsushima and Heese and Fernandez the forecasting business volume comprises forecasting daily quantities over a predefined duration (Landvater: Col. 11, Ln. 21-25).

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(F) As per claim 9, in the collective method of Landvater in view of Tsushima and Heese and Fernandez the forecasting business volume is performed at plural levels of the forecast structure (Landvater: Col. 5, Ln. 1-16).

(G) As per claim 10, in the collective method of Landvater in view of Tsushima and Heese and Fernandez at least one hierarchical level of the forecast structure which maps to a corresponding hierarchical level in the business structure is location (Landvater: Col. 8, Ln. 16-19).

(H) As per claim 11, in the collective method of Landvater in view of Tsushima and Heese and Fernandez the method comprises subdividing in the computer system a location into a plurality of sub-locations (Landvater: Col. 6, Ln. 45- Col. 7, Ln. 33).

(I) As per claim 12, in the collective method of Landvater in view of Tsushima and Heese and Fernandez at least one hierarchical level of the forecast structure which maps to a corresponding hierarchical level in the business structure is department (Landvater: Col. 6, Ln. 45-Col. 7, Ln. 33).

(J) As per claim 13, in the collective method of Landvater in view of Tsushima and Heese and Fernandez at least one hierarchical level of the forecast structure which maps

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to a corresponding hierarchical level in the business structure is job (Landvater: Col. 10, Ln. 5-18).

(K) As per claim 14, in the collective method of Landvater in view of Tsushima and Heese and Fernandez at least one hierarchical levels in the forecast structure are at different depths within the forecast structure than the corresponding hierarchical levels in the business structure (Landvater: Col. 6, Ln. 45-Col. 7, Ln. 33).

(L) As per claim 22, in the collective method of Landvater in view of Tsushima and Heese and Fernandez the calculating workforce requirements includes task level consolidation (Landvater, Col. 12, Ln. 9-56).

(M) As per claim 23, in the collective method of Landvater in view of Tsushima and Heese and Fernandez the task level consolidation comprises:

scheduling specific tasks within a job, wherein each task is associated with a standard (Fernandez: Page 2, Paragraph 4-Page 3, Paragraph 2); and

consolidating the scheduled tasks into a job schedule (Fernandez: Page 2, Paragraph 4-Page 3, Paragraph 2). The motivation for making this modification to the method of Landvater is the same as that set forth in the rejection of claim 1, above.

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(N) As per claim 24, the collective method of Landvater in view of Tsushima and Heese and Fernandez does not decision to apply a standard is based on an economy of scale, however, the examiner takes Official Notice that it is well known in the art to apply standards based on economies of scale. At the time of the invention, it would have been obvious for one of ordinary skill in the art to have modified Landvater with this aforementioned feature with the motivation of having a means of achieving optimal results in actual practice based on projections derived from a model or simulation of a process.

(L) As per claims 27 and 29-30, in the collective method of Landvater in view of Tsushima and Heese and Fernandez the valleys are ranked based on their depth and width, each valley's rank is computed as $(D/W)*C$ wherein D is the valley's depth, W is the valley's width; and C is the valley's rounding cost; peaks are determined in the computer system in the preliminary schedule and the valleys are responsive to the determined peaks and at least one unassigned task is assigned to a lowest portion of the highest-ranked valley. These conventional smoothening (leveling) techniques are disclosed by Landvater (Col. 12, Ln. 9-56) and Fernandez (Page 12, Paragraph 2).

(M) As per claims 31-33, in the collective method of Landvater in view of Tsushima and Heese and Fernandez the step of calculating workforce requirements includes dynamic standard assignment, wherein different metrics are selected at different times. The collective step also includes at least one task which is associated with a plurality of

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tasks, and includes the step of selecting metrics at a specific time which is responsive to conditions at the specific time (Tsushima: Col. 2, Ln. 7-47 and Col. 3, Ln. 56-68).

(N) As per claim 34, in the collective method of Landvater in view of Tsushima and Heese and Fernandez at least one condition is outdoor temperature (Landvater: Col. 12, Ln. 35-40).

(O) As per claim 35, the collective method of Landvater in view of Tsushima and Heese and Fernandez teaches the step of defining an event calendar in the computer system; and selecting at least one event from the event calendar such that the event is considered in the step of forecasting (Landvater: Col. 10, Ln. 50-67).

(P) As per claims 36-37, the collective method of Landvater in view of Tsushima and Heese and Fernandez teaches that if a selected event does not occur during the forecast period, its influence is removed from the forecast if the event occurred during a corresponding period from which the historical data was taken and also teaches that if an event occurs during the forecast period, its influence is added to the forecast if the event did not occur during a corresponding period from which the historical data was taken (Landvater: Col. 11, Ln. 59-Col. 12, Ln. 8).

(R) As per claim 38, the collective method of Landvater in view of Tsushima and Heese and Fernandez teaches the step of defining an event in the computer system to be associated with at least one category in the forecast structure (Landvater: Col. 10, Ln. 50-67).

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(S) As per claim 39, in the collective method of Landvater in view of Tsushima and Heese and Fernandez a plurality of events can be selected for a particular day (Col. 10, Ln. 50-53).

(T) As per claim 40, the collective method of Landvater in view of Tsushima and Heese and Fernandez teaches the step of calculating forecast values for an upcoming day marked with an event, searching in the computer system for dates marked with the same event marker; upon finding such a date, calculating in the computer system a ratio of volume activity associated with said date to the volume activity of plural days surrounding said date; calculating in the computer system a forecast for the upcoming day as if it were a normal, non-event day; and adjusting in the computer system the forecast by the calculated ratio (Landvater: Col. 12, Ln. 9-Col. 13, Ln. 29).

(U) As per claim 41, the collective method of Landvater in view of Tsushima and Heese and Fernandez teaches the step of calculating a ratio, calculating a forecast, and adjusting the forecast are executed for each business volume (Landvater: Col. 11, Ln. 59-Col. 13, Ln. 29).

(V) As per claim 42, in the collective method of Landvater in view of Tsushima and Heese and Fernandez the business volume types are user-definable (Landvater: Col. 11, Ln. 20-25).

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(W) As per claim 43, in the collective method of Landvater in view of Tsushima and Heese and Fernandez business volume types comprise any or all of sales volume, number of transactions, and number of items (Landvater: Col. 11, Ln. 1-25).

(X) As per claim 44, in the collective method of Landvater in view of Tsushima and Heese and Fernandez comprises tracking in the computer system only a subset of volume types at a particular location (Landvater: Col. 11, Ln. 1-39).

(Y) As per claim 45, in the collective method of Landvater in view of Tsushima and Heese and Fernandez the forecast structure comprises plural hierarchical levels of categories (Col. 6, Ln. 45-Col. 7, Ln. 33).

4. Claims 82-84 are rejected under 35 U.S.C. 103(a) as being unpatentable over Landvater in view of Tsushima, Heese and Fernandez.

(A) As per claim 82, Landvater teaches a business volume and workforce requirements forecasting system (Landvater: abstract), comprising:

means for defining a business structure (Col. 4, Ln. 16-52 and Col. 6, Ln. 45-50);

means for defining a forecast structure, wherein certain hierarchical levels of the forecast structure map to corresponding hierarchical levels in the business structure (Col. 8, Ln. 25-46);

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means for forecasting business volume, responsive to the business and forecast structures (Col. 4, Ln. 15-34); and

means for forecasting workforce requirements, responsive to the forecasting business volume means (Col. 10, Ln. 6-12).

Landvater does not teach resource leveling means, responsive to said forecasting workforce requirements means and to resource-leveling tasks, however, this feature is well-known in the art as evidenced Tsushima (Col. 2, Ln. 7-33). At the time of the invention it would have been obvious for one of ordinary skill in the art to have modified the system of Landvater by adding the aforementioned from Tsushima with the motivation of producing a system capable of providing more optimum job scheduling for a wide range of applications as recited in Tsushima (Col. 1, Ln. 50-53).

The collective method of Landvater in view of Tsushima and Heese do not teach or suggest the following steps with regard to the resource leveling step:

resource leveling step comprises

determining valleys (peak) in a preliminary schedule,

ranking the valleys (peaks),

assigning at least one unassigned task to a highest-ranked

valley, and repeating the steps of determining peaks,

determining valleys, ranking the valleys and assigning at least one unassigned task.

However, the above recited steps, are taught in Fernandez (Page 2, Paragraph 4- Page 3, Paragraph 2 and Page 12, Paragraph 2). (Note: Fernandez does not teach a means of ranking the valleys (peaks) per se, however, Fernandez does teach prioritizing tasks and assigning resources based on these priorities to assign resources which the examiner takes the position is the same method as ranking the valleys and assigning tasks to each

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of the valleys.

(B) As per claim 83, the collective system of Landvater in view of Tsushima teaches a means for forecasting business volumes comprises at least one of:

means for forecasting business volume for a predefined duration, responsive to a first set of historical data (Landvater: Col. 4, Ln. 15-52 and Col. 11, Ln. 1-51); and

means for forecasting a traffic pattern for the predefined duration, responsive to a second set of historical data (Landvater: Col. 4, Ln. 15-52 and Col. 12, Ln. 9-40).

(C) As per claim 84, the collective system of Landvater in view of Tsushima teaches a means for selecting at least one event from an event calendar such that the event is considered by said forecasting business volumes means (Landvater: Col. 10, Ln. 50-67).

Allowable Subject Matter

5. Claim 28 is objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims. Claim 27 is an intervening claim between Claims 1 and 28.

The following is a statement of reasons for the indication of allowable subject matter:

The prior art of record (Landvater, Tsushima, Heese and Fernandez) does not teach or suggest computing the valley's rank using the formula $(D/W) * C$ wherein

D is the valley's depth;

W is the valley's width; and

C is the valley's rounding cost.

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Response to Arguments

6. Applicant's arguments with respect to claims 1-14, 16, 20, 22-24, 27, 29-45 and 82-84 have been considered but are moot in view of the new grounds of rejection.

Conclusion

7. Any inquire concerning this communication or earlier communications from the examiner should be directed to Vivek Koppikar, whose telephone number is (571) 272-5109. The examiner can normally be reached from Monday to Friday between 8 AM and 4:30 PM.


If any attempt to reach the examiner by telephone is unsuccessful, the examiner's supervisor, Joseph Thomas, can be reached at (571) 272-6776. The fax telephone numbers for this group are either (571) 273-8300 or (703) 872-9326 (for official communications including After Final communications labeled "Box AF").

Another resource that is available to applicants is the Patent Application Information Retrieval (PAIR). Information regarding the status of an application can be obtained from the (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAX. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, please feel free to contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Sincerely,

Vivek Koppikar

6/12/2006


JOSEPH THOMAS
SUPERVISORY PATENT EXAMINER